

## PATENT COOPERATION TREATY

## PCT

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 20031026		FOR FURTHER ACTION See Form PCT/IPEA/416																									
International application No. PCT/FI2004/000203	International filing date (day/month/year) 02.04.2004	Priority date (day/month/year) 03.04.2003																									
International Patent Classification (IPC) or national classification and IPC C22C 9/00																											
Applicant Outokumpu Oyj et al																											
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>2</u> sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <table><tr><td><input checked="" type="checkbox"/></td><td>Box No. I</td><td>Basis of the report</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Box No. II</td><td>Priority</td></tr><tr><td><input type="checkbox"/></td><td>Box No. III</td><td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td></tr><tr><td><input type="checkbox"/></td><td>Box No. IV</td><td>Lack of unity of invention</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Box No. V</td><td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VI</td><td>Certain documents cited</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VII</td><td>Certain defects in the international application</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VIII</td><td>Certain observations on the international application</td></tr></table>				<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input checked="" type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand 31.01.2005		Date of completion of this report 08.08.2005																									
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# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2004/000203

## Box No. I Basis of the report

### 1. With regard to the language, this report is based on:

- ☐ the international application in the language in which it was filed
- ☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

### 2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1 - 5 as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- pages\* 6 - 7 received by this Authority on 17.06.2005
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

### 3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing *(specify)*: \_\_\_\_\_
- ☐ any table(s) related to the sequence listing *(specify)*: \_\_\_\_\_

### 4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing *(specify)*: \_\_\_\_\_
- ☐ any table(s) related to the sequence listing *(specify)*: \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. II Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:  
☒ copy of the earlier application whose priority has been claimed (Rule 66.7(a)).  
☐ translation of the earlier application whose priority has been claimed (Rule 66.7(b)).
2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rule 64.1). Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2004/000203

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1-11</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-11</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-11</u>	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: JP 03-291340 A and Abstract  
D2: JP 08-209270 A and Abstract  
D3: JP 11-256255 A and Abstract  
D4: US 6 093 499 A

**Discussion.**

Amended claims were filed with the letter of 17/06/2005.

The claims are restricted to a copper alloy with defined contents of oxygen and magnesium. Further, the alloy has an electroconductivity of at least 100% IACS, which restricts contents of further alloying elements and impurities.

The copper alloys disclosed in D1 and D2 contains substantial amounts of alloying elements considered excluded from the present copper alloy.

Consequently, the copper alloy according to present claims 1-11 is novel and is not considered obvious to a person skilled in the art.

As a result, the use according to claims 8-11 is novel and considered not obvious.

Industrial applicability is at hand.

Cited D3 and D4 are less relevant than D1 and D2

## CLAIMS

1. An oxygen-free copper alloy containing oxygen 1 - 10 ppm of the alloy weight, **characterized** in that the alloy contains, in order to improve  
5 temperature resistance, magnesium between 30 – 180 ppm of the alloy weight and that the electroconductivity of the alloy is at least 100% IACS, preferably at least 101% IACS.
2. An alloy according to claim 1, **characterized** in that the alloy contains  
10 magnesium for over 50 ppm.
3. An alloy according to claim 1 or 2, **characterized** in that the alloy contains magnesium not more than 150 ppm.
- 15 4. An alloy according to any of the preceding claims, **characterized** in that the alloy contains oxygen not more than 5 ppm, preferably 1 – 3 ppm.
5. An alloy according to any of the preceding claims, **characterized** in that the half-softening temperature with a 40% degree of deformation is at least 340° C,  
20 preferably at least 380° C.
6. An alloy according to any of the preceding claims, **characterized** in that the half-softening temperature with a 94% degree of deformation is at least 300° C,  
preferably at least 335° C.
- 25 7. An alloy according to any of the preceding claims, **characterized** in that the alloy further contains as impurities phosphorus, silicon and sulfur.
8. The use of copper manufactured according to any of the claims 1 – 7 in  
30 commutators of electric motors where there is required a good temperature resistance and a good electroconductivity or thermal conductivity.

9. The use of copper manufactured according to any of the claims 1 – 7 in a tip of a welding electrode where there is required a good temperature resistance and a good electroconductivity or thermal conductivity.
- 5 10. The use of copper manufactured according to any of the claims 1 – 7 in generator profiles where there is required a good temperature resistance and a good electroconductivity or thermal conductivity.
- 10 11. The use of copper manufactured according to any of the claims 1 – 7 in generator flat bars where there is required a good temperature resistance and a good electroconductivity or thermal conductivity.